

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF CALIFORNIA

TECHNOLOGY PROPERTIES LIMITED LLC
and MCM PORTFOLIO LLC,

Plaintiffs,

v.

CANON, INC. et al.,

Defendants.

No. C 14-3640 CW

ORDER CONSTRUING
DISPUTED CLAIM TERMS
OF U.S. PATENT NOS.
7,719,847;
7,522,424; AND
7,295,443

(Docket No. 282)

TECHNOLOGY PROPERTIES LIMITED LLC
and MCM PORTFOLIO LLC,

Plaintiffs,

v.

HEWLETT-PACKARD COMPANY,

Defendant.

No. C 14-3643 CW

(Docket No. 72)

TECHNOLOGY PROPERTIES LIMITED LLC
and MCM PORTFOLIO LLC,

Plaintiffs,

v.

NEWEGG INC. et al.,

Defendants.

No. C 14-3645 CW

(Docket No. 59)

TECHNOLOGY PROPERTIES LIMITED LLC
and MCM PORTFOLIO LLC,

No. C 14-3646 CW

Plaintiffs,

(Docket No. 69)

v.

SEIKO EPSON CORPORATION, et al.,

Defendants.

_____ /

In these patent infringement cases, Plaintiffs Technology Properties Limited, LLC, and MCM Portfolio, LLC, sued Defendants Canon Inc., Canon U.S.A. Inc., Hewlett-Packard Company, Newegg Inc., Rosewill Inc., Seiko Epson Corporation, and Epson America, Inc. The cases were initially filed in the United States District Court for the Eastern District of Texas, and were transferred to this District upon Defendants' consolidated motion to transfer venue. Docket No. 163.¹ In their amended complaints, Plaintiffs assert that several of Defendants' products infringe Plaintiffs' patents. The parties seek construction of seven disputed terms used in the claims of the following patents-in-suit: U.S. Patent Numbers 7,719,847 (the '847 patent); 7,522,424 (the '424 patent) and 7,285,443 (the '443 patent). On June 18, 2015, the parties appeared for a claim construction hearing. Having considered the

¹ Docket Numbers correspond to the docket for case number 14-3640.

1 claims and specifications, along with the papers and arguments of
2 counsel, the Court construes the disputed terms as follows.

3 LEGAL STANDARD

4 Claim construction is a question of law to be determined by
5 the Court. Markman v. Westview Instruments, Inc., 52 F.3d 967,
6 979 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370 (1996). "To
7 construe a claim term, the trial court must determine the meaning
8 of any disputed words from the perspective of one of ordinary
9 skill in the pertinent art at the time of filing." Chamberlain
10 Group, Inc. v. Lear Corp., 516 F.3d 1331, 1335 (Fed. Cir. 2008).
11 This requires a careful review of the intrinsic record, which
12 includes the claim terms, written description, and prosecution
13 history of the patent. Id.; Phillips v. AWH Corp., 415 F.3d 1303,
14 1312 (Fed. Cir. 2005) (en banc) (internal citations omitted).
15 While claim terms "are generally given their ordinary and
16 customary meaning," the rest of the claim language and the context
17 in which the terms appear "provide substantial guidance as to the
18 meaning of particular claim terms." Phillips, 415 F.3d at 1312-
19 15. Claims "must be read in view of the specification, of which
20 they are a part." Markman, 52 F.3d at 979. Although a patent's
21 prosecution history "lacks the clarity of the specification and
22 thus is less useful for claim construction purposes," it "can
23 often inform the meaning of the claim language by demonstrating
24 how the inventor understood the invention and whether the inventor
25 limited the invention in the course of prosecution, making the
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1 claim scope narrower than it would otherwise be." Phillips, 415
2 F.3d at 1317 (internal quotation marks omitted). The court may
3 also consider extrinsic evidence, including dictionaries,
4 scientific treatises, and testimony from experts and inventors.
5 Such evidence, however, is "less significant than the intrinsic
6 record in determining the legally operative meaning of claim
7 language." Id. (internal quotation marks omitted).
8

9 BACKGROUND

10 The three patents-in-suit were filed in the following order:
11 the '443 patent was first, the '424 patent was second, and the
12 '847 patent was third. The three patents describe devices for
13 reading removable memory cards. There are several different types
14 of memory cards available to consumers, including SmartMedia,
15 CompactFlash, MultiMediaCard (MMC), xD Picture Card and Memory
16 Stick. The variety of formats presented a potential problem for
17 devices that needed to interface with multiple types of memory
18 cards, and the patents-in-suit overcome this problem by enabling
19 production of a memory card reader that can accept and read
20 multiple types of memory cards through a single slot in a single
21 device.
22

23 The parties agree that the patent describes the following
24 technology. The memory cards have pads that mate with the
25 device's contact pins. The contact pins connect to
26 interconnection means, which connect to signal lines, which
27 connect to the device's controller. The physical paths between
28

1 the controller, signal lines, interconnection means and contact
2 pins are fixed. However, because the device accommodates multiple
3 types of memory cards--with their multiple numbers of pads--the
4 contact pins may have to process different signals in order to
5 communicate with the different types of memory cards. The
6 device's controller "maps" the signal lines to the contact pins.
7 Figure 5 of the patents illustrates the different mapping
8 configurations. For example: if an XD card is inserted, the
9 controller identifies the type of card and then connects the RDY
10 signal line to contact pin 3. However, if either an MMC or SD
11 card is inserted, the controller will connect an MCMD signal line
12 to contact pin 3.

14 DISCUSSION

15 1. "to map"

16 The parties seek construction of the term "**to map**" as it
17 appears in two independent claims of the '443 patent. Part of
18 claim 1 reads:
19

20 a controller chip **to map** at least a subset of the at
21 least one set of contact pins to a set of signal lines
22 or power lines, based on an identified type of a memory
media card.

23 '443 patent at 8:53-55. The term also appears in claim 9 in
24 language that is slightly, though not significantly, different.
25 '443 patent at 10:3-6.

26 Plaintiffs contend that the verb "to map" means "to logically
27 assign," and in this case, to logically assign signals to pins,
28

1 depending on the type of memory card that is inserted into the
2 device. Defendants argue that the term means something more
3 specific. They argue that the mapping terms were added during
4 prosecution of the '443 patent², and therefore the file history
5 informs the scope of the claims. Specifically, they argue that
6 the term "mapping" means "to vary the assignment of" because the
7 term was added following a prior art rejection, and if the
8 assignment of signal lines to contact pins does not vary, then the
9 device is not distinguishable from prior art.

11 The prior art to which Defendants refer is United States
12 Patent Number 6,402,558 (the Hung-Ju reference), which also taught
13 an adapter capable of accommodating multiple types of memory
14 cards. Defendants' Brief, Ex. 1 (Docket No. 300-1). The original
15 application for the '443 patent included the following language
16 for claim 1: "a controller chip to differentiate a pin
17 configuration based on an inserted memory media card." Office
18 Action Summary (Docket No. 300-3) at TPL002547. The examiner
19 rejected this claim as anticipated by Hung-Ju. Office Action
20 Summary at TPL002239-40. Then, the applicant changed the language
21 of claim 1 to the following: "a controller chip to map at least a
22 subset of the at least one set of contact pins to a set of signal
23 lines or power lines, based on an identified type of memory media
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26
27 ² Defendants argue, and Plaintiffs do not contest, that
28 statements relating to "mapping" during the prosecution of the
'443 patent apply equally to the '424 and '847 patents.

1 card." Office Action Summary at TPL002547. The applicant
2 explained:

3 As shown, Hung-Ju discusses a memory media card adaptor
4 suitable for different types of memory cards by
5 physically "positioning contact pins and entrance slots
6 in various locations". Thus, Hung-Ju suggests using
7 different sets of contact pins for different types of
8 memory cards. By physically placing memory cards in
9 different positions in the adaptor, different contact
10 pins are in contact with the memory cards. Thus, Hung-
11 Ju teaches away from the claim limitation using a
12 controller chip to "map at least a subset of the at
13 least one set of contact pins to a set of signal lines
14 or power lines" where one set of pins is mapped to
15 different signals depending on the type of identified
16 memory card, as recited in Applicant's independent
17 claims 1 and 12 [patented claims 1 and 9].

18 Office Action Summary at TPL002554-55 (emphasis in original). In
19 sum, Hung-Ju taught a device with multiple slots and multiple sets
20 of contact pins for the multiple types memory cards, but the
21 application that became the '443 patent taught a device that did
22 not require multiple slots and multiple contact pins but instead
23 utilized a controller to map the same (or a subset of) contact
24 pins to different signal lines, depending on the type of card
25 inserted.

26 Defendants offer two separate arguments regarding how Hung-Ju
27 informs the construction of the "mapping" claim. Defendants first
28 argue that the specification of the '443 and '424 patents uses the
word "mapping" in an entirely different sense than it is used in
the claims. They point to Figure 3, described as showing a device
with "a number of sets of contact pins," and explain that these
different sets of contact pins exist to connect to different types

1 of cards. They argue that Figures 4 and 5 describe fixed
2 assignments of signal lines and different sets of contact pins,
3 depending on which type of card is inserted. According to
4 Defendants, this "mapping" is different from the controller chip's
5 task "to map" pins to signal lines because the Figures depict a
6 version of the invention that was rejected due to Hung-Ju, while
7 the use of a controller "to map" pins to signal lines was added
8 after the prior art rejection.
9

10 The Court is not persuaded that it must read the "to map"
11 phrases in the claims differently from the "mapping" phrases in
12 the specification. It is well-established that a court looks to
13 the prosecution history as well as the words of the claims
14 themselves, the specification and any relevant extrinsic evidence
15 when construing claims. Phillips v. AWH Corp., 415 F.3d 1303,
16 1312-12 (Fed. Cir. 2005) (en banc). Prosecution history is
17 particularly informative when it demonstrates that the inventor
18 limited the invention in the course of prosecution, making the
19 claim scope narrower than it would otherwise be. Vitronics Corp.
20 v. Conceptronic, Inc., 90 F.3d 1576, 1582-83 (Fed. Cir. 1996).
21 "In construing terms used in patent claims, it is necessary to
22 consider the specification as a whole, and to read all portions of
23 the written description, if possible, in a manner that renders the
24 patent internally consistent." Budde v. Harley-Davidson, Inc.,
25 250 F.3d 1369, 1379-80 (Fed. Cir. 2001). Defendants have not
26 shown that the variations of the word "map" are used
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1 inconsistently throughout. Rather, as Plaintiffs show, the claims
2 as revised following the prior art rejection are consistent with
3 the description of the mapping function in the specification.
4 Once a memory card is inserted, a controller chip determines what
5 type of card is inserted and then maps the contact pins to signal
6 lines according to the assignments shown in Figures 4 and 5.
7 Indeed, the applicant specifically referred to Figure 4 in his
8 discussion of "mapping" in the context of the Hung-Ju reference.
9 The "mapping" terms are susceptible to a logical, internally-
10 consistent reading, and Defendants' argument that the Court must
11 read the "mapping" phrases as having different meanings in the
12 specification and the claims is without merit.

14 Defendants next contend that one skilled in the art would
15 understand the term "to map" as used in the patents-in-suit and in
16 the context of the prosecution history detailed above to mean
17 varying the assignment of the signal line based upon which type of
18 memory card is inserted. Defendants further urge the Court to
19 specify that the use of some signal lines in some circumstances
20 but not others, based upon fixed assignments, does not constitute
21 mapping. Defendants argue that after the application was rejected
22 due to Hung-Ju, the applicant added the mapping term, thereby
23 narrowing the claim scope. Defendants show that the adapter in
24 Hung-Ju contained a single slot for SD and MMC cards, and
25 extrapolate that one skilled in the art would understand that the
26 use of the phrase "to map" excludes such an arrangement.
27
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1 Plaintiffs respond first that Defendants' argument is less
2 one of claim construction than it is of non-infringement. The
3 Court agrees. If the accused devices are like the device in Hung-
4 Ju, with a single port and a shared set of contact pins for both
5 SD and MMC cards, it may be that the accused devices do not
6 infringe the patents-in-suit. However, the fact that the inventor
7 distinguished prior art does not necessarily shed light on the
8 definition of the terms used. First, as Plaintiffs argue, the
9 applicant did not differentiate Hung-Ju on the basis that
10 "mapping" required "varying assignments." The discussion block-
11 quoted above distinguishes Hung-Ju on the basis that Hung-Ju
12 utilizes multiple ports with different physical locations in the
13 device while the patented invention utilizes a controller chip to
14 map signals to lines, depending on the type of memory card
15 inserted. It is not plain from this discussion that "mapping"
16 must mean varying the assignments such that using signal lines in
17 some circumstances but not in others does not constitute mapping.
18 Second, the Court must give claim terms their plain and ordinary
19 meaning to one of skill in the art, with two exceptions: (1) when
20 the inventor acts as a lexicographer and defines a term and (2)
21 when the inventor disavows the full scope of the claim term,
22 either during prosecution or in the specification. Hill-Rom
23 Services, Inc. v. Stryker Corp., 755 F.3d 1367, 1371 (Fed. Cir.
24 2014) (citations omitted). Defendants argue neither. The Court
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1 thus concludes that it must reject Defendants' proposed
2 construction of "to map."

3 Plaintiffs propose construing "to map" as "to logically
4 assign." As briefly mentioned in a footnote in their reply brief,
5 and as discussed at the claim construction hearing, Plaintiffs'
6 proposal includes the word "logically" in an effort to define away
7 any necessity for a physical change of connections based upon the
8 identification of a type of media card. This argument anticipates
9 an argument made by Defendants before the ITC, but which
10 Defendants did not include in their response brief. The Court
11 concludes that the plain and ordinary meaning of "to map" as used
12 in the patents does not necessarily speak to whether the
13 assignment must be physical or logical, and making that
14 determination would be beyond the scope of claim construction.
15 Accordingly, the Court construes **"to map"** as meaning **"to assign."**

16 **2. "means for mapping"**

17 The parties seek construction of the term **"means for mapping"**
18 as it appears in four claims of the '424 patent and one claim of
19 the '847 patent.
20

21 Claim 1 of the '847 patent describes a **"means for mapping**
22 **power, ground or data signals between said signal lines and said**
23 **contact pins depending upon the identification of the type of**
24 **memory card inserted into said port; wherein the means for mapping**
25 **comprises a controller."** '847 patent at 8:46-50. Claim 26 of the
26 '424 patent claims an "Apparatus according to claim 25 where the
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1 **means for mapping** comprises a controller." '424 patent at 11:12-
2 13. Claim 29 of the '424 patent claims an "Apparatus according to
3 Claim 28 where said **means for mapping** comprises a controller."
4 '424 patent at 12:12-13. Claims 25 and 28 describe a "**means for**
5 **mapping** power, ground or data signals between said interconnection
6 pins and said one or more contact pins depending upon the
7 identification of the type of memory card inserted into said
8 port." '424 patent at 11:8-11 and 12:8-11.
9

10 Defendants contend that all five of the above-quoted claim
11 terms are means-plus-function claims governed by 35 U.S.C. § 112,
12 ¶ 6. Defendants further contend that all five claims are invalid
13 as indefinite because the patents do not disclose an algorithm to
14 accomplish the function. Plaintiffs agree claims 25 and 28 of the
15 '424 patent are means-plus-function claims, but argue that claim 1
16 of the '847 patent and claims 26 and 29 of the '424 patent are
17 not.
18

19 The Court first considers whether claim 1 of the '847 patent
20 and claims 26 and 29 of the '424 patent are means-plus-function
21 claims. The text of these claims specifies that the "means for
22 mapping comprises a controller." Claim terms that use the phrase
23 "means for" are presumptively means-plus-function terms governed
24 by § 112. Biomedino, LLC v. Waters Techs. Corp., 490 F.3d 946,
25 950 (Fed. Cir. 2007). The presumption is overcome if the claim,
26 in addition to the functional language, recites sufficient
27 structure to perform the recited function in its entirety. Id.
28

1 The parties agree that the structure recited in claim 1 of the
2 '847 patent and claims 26 and 29 of the '424 patent is "a
3 controller." Plaintiffs maintain that naming a controller
4 discloses sufficient structure to explain how to perform the
5 mapping function described in these claims; Defendants argue that
6 it does not.

7 Both sides offer an expert opinion in support of their
8 argument. Plaintiffs provide a declaration from their expert,
9 Dale E. Buscaino, from the proceedings before the ITC. During
10 those proceedings, Mr. Buscaino opined:

12 It is my opinion that the disclosed structure includes a
13 controller or controller chip. . . . In my opinion, the
14 controller or controller chip is a chip or integrated
15 circuit that can manage, for example, flash memory card
16 input / output, without the need for a computer or
17 microprocessor and without any programmed algorithm. It
18 is my opinion that a computer-less, microprocessor-less
integrated circuit or chip can perform the function of
"mapping power, ground or data signals. . . ." And, I
do not view the specifications of the '847 and '424
patents as limiting the controller or controller chip to
require a computer or microprocessor.

19 Buscaino Decl., Docket No. 282-17, Ex. O. at ¶ 20. Defendants
20 counter with an opinion from their expert, Dr. Gary S. Tjaden,
21 that in order to accomplish the mapping function, the disclosure
22 of a controller as structure is insufficient because the mapping
23 function requires that the controller must be a microprocessor and
24 that the microprocessor must be programmed according to a
25 particular algorithm.
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1 The Court finds Plaintiffs' expert to be more persuasive.
2 Defendants' argument may have been more relevant had the Court
3 adopted Defendants' proposal regarding the construction of the
4 term "to map." If the patents required a dynamic assignment of
5 contact pins to signal lines, then a microprocessor might be
6 necessary to accomplish the mapping function. Defendants' expert,
7 Dr. Tjaden, opines that a microprocessor is required, but does not
8 clearly identify the definition of the term "mapping" that he
9 employs. Tjaden Decl. (Docket No. 300-18). It appears that he
10 utilizes Defendants' proposed definition of "to map" which would
11 require the controller to be capable of dynamically varying the
12 assignments of signal lines to contact pins. It may well be that
13 under Defendants' understanding of "to map" a microprocessor is
14 necessary; however, the Court rejected Defendants' proposal as
15 explained above. The Tjaden declaration does not shed much light
16 on the necessity of a microprocessor under the less-stringent
17 construction of "to map" as utilized in the patents and adopted by
18 the Court. In contrast, Plaintiffs' expert Mr. Buscaino
19 explicitly utilized the construction adopted above; he stated in
20 his declaration that to "logically assign" signals, a controller
21 is sufficient structure. Buscaino Decl. at ¶¶ 19-20.

22 Defendants' citation to Aristocrat Technologies Australia Pty
23 Ltd. v. International Game Technology, 521 F.3d 1328 (Fed Cir.
24 2008), is unavailing. In that case, the Federal Circuit held that
25 computer-implemented means-plus-function claims require an
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1 algorithm in order to disclose sufficient structure. 521 F.3d at
2 1338. But there, even the patentee acknowledged that the
3 structure required a "standard microprocessor-based gaming machine
4 with appropriate programming" to accomplish the recited functions.
5 Id. at 1331 (internal quotations omitted). There was no argument
6 before that court, as there is here, that a microprocessor is not
7 necessary to perform the recited functions. Instead, here,
8 Plaintiffs' expert opined that the recited functions could be
9 accomplished by "a computer-less, microprocessor-less integrated
10 circuit or chip." The holding from Aristocrat requiring
11 disclosure of an algorithm does not extend to a function that can
12 be performed by an integrated circuit or chip.
13

14 Given the uncertainty surrounding Defendants' expert's
15 definition of the mapping function and the likelihood that their
16 expert employed a more stringent definition of the mapping
17 function than the Court adopted above, the Court concludes that
18 claim 1 of the '847 patent and claims 26 and 29 of the '424
19 patent, which specifically state that the "means for mapping
20 comprises a controller," disclose sufficient structure to overcome
21 the presumption that the claims are means-plus-function claims.
22

23 Claims 25 and 28 of the '424 patent vary slightly in that
24 they do not specify structure, but rather focus on the function
25 performed. They claim a **"means for mapping** power, ground or data
26 signals between said interconnection pins and said one or more
27 contact pins depending upon the identification of the type of
28

1 memory card inserted into said port." The parties agree that
2 these claims are means-plus-function claims. For such claims,
3 courts utilize a two-step process in claim construction. First,
4 the court must identify the function described in the claim, and
5 second, the court must identify the corresponding structure for
6 that function. There is no dispute that the function is
7 "mapping," which, as construed above, means "assigning." The
8 parties also agree that these claims disclose a controller as the
9 structure.
10

11 The controversy raised by the parties with regard to these
12 claims is less about claim construction than the validity of the
13 claims. Defendants argue that "a controller" is insufficient
14 structure, that therefore an algorithm must be disclosed, and that
15 the Court must find the claim to be invalid as indefinite because
16 the patents do not disclose an algorithm. Patents are presumed
17 valid and, thus, Defendants bear the burden to show that the
18 claims fail as indefinite. Telcordia Technologies, Inc. v. Cisco
19 Systems, Inc., 612 F.3d 1365, 1377 (Fed Cir. 2010). As discussed
20 above, Plaintiffs and Defendants have both offered expert
21 testimony on this point; however, Defendants' expert did not
22 specify the definition of the "mapping" function he considered in
23 arriving at his opinion that a controller is insufficient
24 structure to accomplish the function. The Court therefore
25 declines to determine the validity of the claims at this time.
26 Defendants will have an opportunity to put forth any invalidity
27
28

1 arguments they may have, utilizing the "mapping" terms as
2 construed by the Court.

3 Accordingly, the Court construes **"means for mapping"** to have
4 a function as that recited by the claims (with "mapping" as
5 construed above) and construes the corresponding structure as **"a**
6 **controller."** Additionally, the Court rejects Defendants' argument
7 that the "means for mapping" term is indefinite, without prejudice
8 to Defendants' reasserting the argument with appropriate evidence
9 at summary judgment or trial.
10

11 **3. "means for [identifying/determining] the type of memory**
12 **card inserted into said port"**

13 This phrase appears in claims 25 and 28 of the '424 patent
14 and claim 2 of the '847 patent. The '424 patent twice describes a
15 **"means for identifying the type of memory card** inserted into said
16 port." '424 patent at 11:6-7 and 12:6-7. The '847 patent
17 describes an apparatus "where said controller comprises **means for**
18 **determining the type of memory card** inserted into said port."
19 '847 patent at 8:51-54.
20

21 The parties agree that these phrases are means-plus-function
22 claims governed by 35 U.S.C. § 112, ¶ 6, and they agree that the
23 function is identifying the type of memory card inserted into the
24 port. The parties dispute the corresponding structure.
25 Plaintiffs maintain that the structure is a controller.
26 Defendants argue that more is required, and that the structure is
27 "a controller and card detect lines for the various cards, wherein
28

1 the card detect lines for at least one type of memory card is
2 multiplexed with data bus lines for at least one other type of
3 card." Defendants' Brief at 20.

4 Title 35 provides that the "specification shall conclude with
5 one or more claims particularly pointing out and distinctly
6 claiming the subject matter which the applicant regards as his
7 invention." 35 U.S.C. § 112, ¶ 2. The test for whether the
8 disclosure is sufficient is considered from the perspective of a
9 person of skill in the art. Telcordia, 612 F.3d at 1377. "While
10 corresponding structure need not include all things necessary to
11 enable the claimed invention to work, it must include all
12 structure that actually performs the recited function." Default
13 Proof Credit Card Sys. v. Home Depot U.S.A., Inc., 412 F.3d 1291,
14 1298 (Fed. Cir. 2005).

15
16 In their briefs and presentations at the claim construction
17 hearing, the parties dispute what structure is necessary to
18 perform the stated function. First, Defendants argue that card
19 detect lines are required to perform the identifying function,
20 while Plaintiffs contend that they are not. The patents state
21 that detection of card type is determined by which of the card
22 detect lines pulls to low voltage, and it is through this signal
23 on the card detect lines that the controller knows which type of
24 card is inserted into the device. '424 patent at 6:44-46. The
25 card detect lines are a necessary part of the structure that
26 actually performs the identification function. Thus, disclosure
27
28

1 of the controller and card detect lines as the structure satisfies
2 the requirement that the disclosure "include all structure that
3 actually performs the recited function." Default Proof Credit
4 Card Sys., 412 F.3d at 1298.

5 Next, Defendants argue that the card detect lines must be
6 multiplexed with signal lines. They point out that the
7 specification's discussion of the SmartMedia and xD cards includes
8 data bus lines that are "multiplexed to serve as card-detect
9 lines." Defendants do not effectively reply to Plaintiffs'
10 response that in some embodiments no multiplexing is required.
11 Plaintiffs show that if the invention is implemented in a device
12 that reads only the Mini SD, RS MMC and Memory Stick Duo types of
13 media memory cards, none of the card detect lines must be
14 multiplexed. This is because, as illustrated in Figure 5, each of
15 these types of memory cards utilizes different card detect lines.
16 In this embodiment, each card has its own non-multiplexed card
17 detect line that is not shared with any other card type.
18 Accordingly, the Court concludes that the data lines may be
19 multiplexed, but it is not necessary that they be multiplexed in
20 all embodiments of the patent.

21 At the claim construction hearing, Plaintiffs offered MCMD
22 command signals as another component for the structure of this
23 claim. Defendants countered that the MCMD command signals, while
24 mentioned in the patent, are not clearly linked to the function of
25 identifying the type of card, and therefore MCMD command signals

1 cannot be cited as structure for the means-plus-function claim.
2 Biomedino, 490 F.3d at 950. Plaintiffs referred the Court to
3 paragraph 40 of the Buscaino declaration, which provides:

4 There are a number of structures disclosed in the '424
5 and '847 patent specifications that are involved in the
6 card identification process. . . . Further, Figures 4
7 and 5 of the '424 and '847 patents disclose MCMD, which
8 refers to a pin and corresponding control signal line
9 used by the controller for sending commands and by SD
10 and MMC cards for issuing responses back to the
11 controller. In addition, the '424 and '847 patents
12 disclose "control signals" in column 6, lines 51-53 and
13 column 5, lines 52-54, respectively. Control signals
14 include signals issued by the controller to a card that
15 include initialization commands. Initialization
16 commands disclosed in the SD specification, such as
17 CMD0, ACMD41, CMD2, and CMD3, are conveyed along the
18 MCMD control signal line and are used by the controller
19 to distinguish between SD and MMC cards. Responses from
20 SD and MMC cards are also conveyed along the MCMD
21 controls signal line.

22 Buscaino Decl. at ¶ 40. The Court agrees with Defendants that
23 MCMD was not clearly linked to the function of identifying the
24 card type, and takes each argument quoted above in turn. First,
25 it is true that "MCMD" appears in Figures 4 and 5 of the patents,
26 but it appears only as a mapping of a contact pin to a signal line
27 and without any explanation regarding function. The citation to
28 the disclosure of control signals in the '424 and '847 patents is
similarly unhelpful to Plaintiffs; the cited passage refers to
control signals found in the pin mappings for smart media cards,
not MMC/SD cards, and does not refer to MCMD. And finally, the SD
specification, an extrinsic document, is of little assistance
because the inquiry is limited to the written description in the

1 patents themselves. For these reasons, the Court does not find
2 that MCMD command signals are part of the recited structure of
3 this claim.

4 Accordingly, the Court construes the function as that recited
5 by the claims and construes the corresponding structure as "**a**
6 **controller and card detect lines.**"

7 **4. "Contact pins integrated within [the] molded plastic"**

8
9 This phrase appears in claims 1 and 9 of the '443 patent.
10 Claim 1 describes contact pins, ". . . wherein the at least one
11 set of **contact pins are integrated within the molded plastic** of
12 the first planar element or the second planar element." '443
13 patent at 8:49-53. The term appears in claim 9 in language that
14 is slightly, though not significantly, different. '443 patent at
15 9:27-10:2. Plaintiffs contend that no construction is necessary
16 because the phrase is readily comprehensible by a finder of fact.
17 Defendants argue that intrinsic evidence supports giving the term
18 a limited construction, that the pins are "embedded" in the
19 plastic, and so-called floating pins are excluded. Defendants'
20 Brief at 25.

21
22 Defendants first argue that the specification teaches away
23 from floating pins. The specification discusses the floating pins
24 of the prior art and points out several disadvantages, including:
25 floating pins are subject to damage and deterioration, their
26 resiliency is reduced through use which may eventually make it
27 more difficult for cards to make connection, and improper
28

1 insertion of memory cards may result in damage to the pins. '443
2 patent at 2:66-3:10. The specification further states that the
3 invention overcomes these problems because the pins are "formed
4 from injected contacts with protruding pins." '443 patent at
5 5:26-27. Defendants maintain that these statements show that
6 floating pins are not included in the specification. The Court
7 disagrees with this argument for two related reasons. First,
8 Defendants overlook the words preceding the above-quoted phrase;
9 the complete phrase actually remarks, "For an embodiment in which
10 the planar elements are formed from molded plastic, contact pin
11 sets may be formed from injected contacts with protruding pins."
12 '443 patent at 5:24-27 (figure numerals omitted; emphasis added).
13 Thus the specification leaves open the possibility that the pins
14 may be "formed from injected contacts" in an embodiment, but also
15 that they may not in other embodiments. Second, the '443 patent
16 explains the advantages of "one embodiment" of the invention as
17 having pins that retain resiliency more than floating pins. '443
18 patent at 4:23-26. This may be read to imply that other
19 embodiments of the patent include floating pins. That a patent
20 criticizes existing technology does not necessarily preclude
21 incorporation of that technology. Thorner v. Sony Computer Entm't
22 Am. LLC, 669 F.3d 1362, 1366 (Fed. Cir. 2012) ("Mere criticism of
23 a particular embodiment encompassed in the plain meaning of a
24 claim term is not sufficient to rise to the level of clear
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1 disavowal."). The Court thus concludes that the claims do not
2 necessarily disallow the use of floating pins in every embodiment.

3 Defendants also argue that the applicant disclaimed floating
4 pins during the prosecution of the '443 patent. It is true, as
5 noted above, that "the prosecution history (or file wrapper)
6 limits the interpretation of claims so as to exclude any
7 interpretation that may have been disclaimed or disavowed during
8 prosecution in order to obtain claim allowance." Standard Oil Co.
9 v. Am. Cyanamid Co., 774 F.2d 448, 452 (Fed. Cir. 1985).

10 Patentees are not entitled to the broad, plain and ordinary
11 meaning of a claim term if they have made a clear disavowal of
12 claim scope. Thorner, 669 F.3d at 1367. The court may only find
13 disavowal if there is "a clear and explicit statement by the
14 patentee." Id. Defendants point to the prosecution history, and
15 contend that the applicant explicitly disclaimed floating pins in
16 response to the prior art rejection citing Hung-Ju. However, a
17 close look at the relevant discussion reveals that the applicant
18 pointed out only that the invention has contacts pins that are
19 "integrated within the molded plastic" in contrast to Hung-Ju
20 which teaches pins that are "of a floating structure sitting on an
21 exterior or interior surface." Office Action Summary at
22 TPL002556-57. The parties have not provided the Court with a
23 comprehensive definition of what a floating pin is, and the
24 discussion during the claim construction hearing yielded examples
25 but nothing definitive. It may be that pins "of a floating
26
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1 structure sitting on an exterior or interior surface" are only one
2 variation of floating pins, and in excluding all floating pins the
3 Court would read the discussion of Hung-Ju too broadly. Based on
4 the record before the Court, the Court is unwilling to find that
5 the applicant's statement during prosecution constituted a clear
6 and explicit disavowal of floating pins of every possible nature.

7
8 The Court will not define the claim term with reference to
9 "floating contact pins." Nonetheless, the Court disagrees with
10 Plaintiffs' argument that no construction is necessary of the
11 claim term "contact pins integrated within [the] molded plastic."
12 The Court will, therefore, further define the term. Defendants
13 argue that the term should be construed to mean "embedded within
14 molded plastic." Defendants' Brief at 24. At the ITC, the ALJ
15 agreed with Defendants, noting that part of the specification
16 describes the advantages of the pins being "embedded" in the
17 molded plastic. ALJ Claim Construction at 23 (quoting '443 patent
18 at 7:67-8:3). The Court agrees with this construction. The
19 purpose behind "integrating" the pins into the plastic is to build
20 a physical structure that is sturdier than if the pins were merely
21 resting upon the plastic. Construction of the term to require
22 that the contact pins be embedded--that is, firmly fixed--in the
23 molded plastic reflects that stated purpose. Accordingly, the
24 Court construes **"contact pins integrated within the molded**
25 **plastic"** to mean **"contact pins embedded within the molded**
26 **plastic."**

1
2 **5. "interconnection means"**

3 This phrase appears in claims 25 and 28 of the '424 patent,
4 and claim 1 of the '847 patent. Claim 25 of the '424 patent
5 describes "an **interconnection means** having a plurality of
6 interconnection pins". '424 patent at 10:66-67. Claim 28 of the
7 '424 patent describes "a set of signal lines connected to an
8 **interconnection means.**" '424 patent at 12:5. Finally, claim 1 of
9 the '847 patent describes:
10

11 a set of signal lines connected to a controller,
12 the number of signal lines being fewer than the number
13 of contact pins; the signal lines located between the
14 controller and an **interconnection means**;

15 said **interconnection means** being located between
16 the signal lines and the plurality of sets of contact
17 connecting said signal lines to said one or more contact
18 pins[.]

19 '847 patent at 8:39-46. Plaintiffs argue that the term
20 "interconnection means" should be construed as "conductive
21 elements that electrically connect." Plaintiffs' Brief at 20.
22 Defendants argue that the term means "conductive structures
23 separate and distinct from contact pins." Defendants' Brief at
24 28.

25 The Court agrees with Defendants. This construction is
26 supported by the specification. The '424 patent describes
27 "[i]nterconnects that electrically connect the standard connector
28 to contact pins." '424 patent at 5:42-43 (figure numerals
omitted). The interconnects (or interconnection means) are

1 separate structures placed between the connector and the contact
2 pins. Additionally, claims 25 and 28 both require a "means for
3 mapping" between the interconnection means and the contact pins.
4 '424 patent at 11:8-10 and 12:8-10. In order to map signals
5 between interconnection means and contact pins, those two elements
6 must be separate and distinct structures. This understanding is
7 also supported by the '847 patent, where claim 1 requires an
8 interconnection means that "connect[s] said signal lines to one or
9 more contact pins." Plaintiffs contend that there is no intrinsic
10 evidence requiring that the interconnection means must be separate
11 from the contact pins. However, Plaintiffs do not address or
12 rebut Defendants' arguments. The Court concludes that if there is
13 a means for mapping signals between interconnection means and
14 contact pins, these two elements must be separate and distinct
15 because if they are the same structures then the claimed mapping
16 cannot occur. Accordingly, the Court construes **"interconnection
17 means"** to mean **"conductive structures separate and distinct from
18 contact pins."**

21 6. "memory media card"

22 This phrase appears in claims 1 and 9 of the '443 patent, in
23 claims 25 and 28 of the '424 patent, and in claim 1 of the '847
24 patent. Claim 1 of the '443 patent describes a physical structure
25 creating a "port capable of receiving a **memory media card**" and a
26 controller chip to map contact pins to signal lines, "based on an
27 identified type of a **memory media card.**" '443 patent at 8:42 and
28

1 8:54-56. The term also appears in claims 25 and 28 of the '424
2 patent, and in claim 1 of the '847 patent in language that is
3 slightly, though not significantly, different. '424 patent at
4 11:4 and 12:4; '847 patent at 8:37.

5 Plaintiffs contend that the term is readily comprehensible to
6 a finder of fact and no further construction is necessary. As
7 discussed at the claim construction hearing, the Court disagrees
8 with Plaintiffs, and finds that some definition of the term is
9 necessary to assist in the adjudication of the parties' dispute.
10 At the hearing, when asked to offer a construction of the term,
11 Plaintiffs emphasized the requirement that the memory media card
12 be capable of storing large digital files, such as video or
13 photographs. Defendants proposed construing the term as "a
14 removable module capable of storing electronic data." Defendants'
15 Brief at 29.

16
17 The Court adopts Defendants' proposal. The word "media"
18 could be read either as describing a structure upon which data is
19 written or as describing the content that is written, for example
20 video or pictures. The Court finds that the word is used to
21 describe the former. First, the patents do not limit the term to
22 require that the card be capable of storing video or photographs.
23 The actual content of the card is not discussed in the patents;
24 there is no mention of video, photographs or pictures. Second,
25 while the patents provide examples of cards that are capable of
26 storing media content, the specification specifically states, "In
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28

1 general, embodiments of the invention are applicable to any
2 generic flash media." '443 patent at 8:23-24; '424 patent at
3 8:35-36; '847 patent at 8:24-25. In their reply brief, Plaintiffs
4 cite the above-quoted passage, but they do not explain why the
5 term "media" refers to content, or why the card must be capable of
6 storing large digital files, as they contend.

7
8 Finally, in lieu of Defendants' suggestion to utilize the
9 word "module," a technical term that is not defined in the record,
10 the Court will use the more familiar word "device," as discussed
11 at the claim construction hearing.

12 Accordingly, the Court concludes that the term **"memory media**
13 **card"** means **"a removable device capable of storing electronic**
14 **data."**

15
16 **7. "type of memory [media] card"**

17 This phrase appears in claims 1 and 9 of the '443 patent, in
18 claims 25 and 28 of the '424 patent, and in claim 1 of the '847
19 patent. The '443 patent describes that the controller chip maps
20 contact pins to signal lines, "based on an identified **type of a**
21 **memory media card."** '443 patent at 8:54-56. The term appears in
22 claim 9 of the '443 patent, claims 25 and 28 of the '424 patent,
23 and in claim 1 of the '847 patent in language that is slightly,
24 though not significantly, different. '443 patent at 10:6; '424
25 patent at 11:6 and 12:10-11; '847 patent at 8:48.

26
27 Plaintiffs contend that this term requires no construction.
28 Defendants propose the following: "different 'types of memory

1 media cards' have incompatible electrical and physical interfaces.
2 For purposes of mapping/identifying in these claims, MMC/SD is a
3 single type of memory media card." Defendants' Brief at 31.

4 The Court rejects Defendants' proposal. The intrinsic
5 evidence does not support a conclusion that the applicant clearly
6 limited the term to mean that MMC and SD cards are a single type
7 of memory media card. Instead, as Plaintiffs show, the applicant
8 differentiated MMC and SD cards in Figure 1 and in the
9 specification. Plaintiffs' Brief at 21-22 (quoting '424 patent at
10 2:2-4) ("MultiMediaCard 141 or Secure Digital card 153 . . . have
11 . . . different pin-out."). The applicant also differentiated MMC
12 and SD cards during prosecution, explaining that Figures 4 and 5
13 show the sets of contact pins utilized depending upon the type of
14 card inserted, and specifying that "MMC and SD are themselves
15 different card types." '847 File History, Ex. I. In light of the
16 instances in the record where MMC and SD cards are specifically
17 referred to as different "types" of cards, the Court rejects the
18 second sentence of Defendants' proposal as unsupported by the
19 record.
20
21

22 The Court also rejects the first half of Defendants'
23 proposal, that different types of cards must have incompatible
24 electrical and physical interfaces, as unsupported by the record.
25 The concept of incompatibility is not well-defined in the
26 materials before the Court; indeed, Defendants do not use, much
27 less define, the term in their brief urging the Court to adopt a
28

1 definition relying on that term. Moreover, the word
2 "incompatible" is used only once in each patent, each time
3 discussing compatibility of adapter cards with laptop devices,
4 another context entirely. '443 patent at 3:14-16; '424 patent at
5 3:14-16; '847 patent at 3:2-3. Thus the Court declines to
6 construe the claim term using the word "compatibility."

7
8 In their briefs, Plaintiffs contend that no construction is
9 necessary. The Court disagrees and finds that definition of the
10 term will assist in further adjudication of this case. At the
11 claim construction hearing Plaintiffs proposed a definition that
12 different types of cards have different numbers of contact pins or
13 use those contact pins differently. When asked, Defendants did
14 not articulate a reason why the Court should not adopt Plaintiffs'
15 proposal. The Court finds that this definition is supported by
16 the intrinsic evidence, given the patents' emphasis on assigning
17 contact pins to signal lines upon detecting the type of card; it
18 makes sense that if the card's contact pins are different in
19 number or differently used, this would constitute a different type
20 of card, affecting how the controller maps the signals.
21 Accordingly, the Court concludes that the term "type of memory
22 [media] card" means a "subset of memory media cards containing
23 different numbers of contact pins or using contact pins
24 differently."
25
26

27 CONCLUSION

For the reasons explained above, the Court construes the disputed claims as follows:

Term	Court's Construction
1. "to map"	"to assign"
2. "means for mapping"	Function: "mapping" Structure: "a controller"
3. "means for [identifying/determining] the type of memory card inserted into said port"	Function: "[identifying/determining] the type of memory card inserted into said port" Structure: "a controller and card detect lines"
4. "Contact pins integrated within molded plastic"	"contact pins embedded within molded plastic"
5. "Interconnection means"	"conductive structures separate and distinct from contact pins"
6. "memory media card"	"a removable device capable of storing electronic data"
7. "type of memory [media] card"	"subset of memory media cards containing different numbers of contact pins or using contact pins differently"

IT IS SO ORDERED.

Dated: September 18, 2015



CLAUDIA WILKEN
United States District Judge